FFA CDE Product Development Event Ingredients

The Marketing Scenario is a product development event. The ingredient catagories below have different functions in food products. It is important to understand how they work, how they relate to different nutritional categories, and how they fit into different diet regimens.

Definitions:

- Heart Healthy:
    - 8-10% of daily total Calories come from saturated fats
    - 30% or less of daily total Calories from fat/oils
    - Less than 300 mg of dietary cholesterol per day
    - Less than 2400 mg of sodium per day
    - Sufficient calories to achieve or maintain a healthy weight and reduce blood cholesterol level
        - Generally 2,000 or 2,500 Calories per day
- Low Fat: Contains 3 g or less per 100 g
- Fat-Free: Less than 0.5 g per reference amount and per labeled serving
- “Reduced/Less”: At least 25% less of the specified ingredient/nutrient per 100g of the appropriate reference food. “Reduced” claims may not be made if the food meets the definition for “low”.
- Sodium Free: Less than 5 mg per reference serving and per labeled serving
- Low Sodium: Less than 140 mg per 100 g.
- Sugar Free: Less than 0.5 g sugar per reference amount and per labeled serving/

- Low Calorie: 40 Calories or less per reference amount.
- High in fiber: 5 g per serving
- Good source of fiber: 2.5 to 4.9 g per serving
- Antioxidants: Compounds that scavenge free radicals and other reactive oxygen compound responsible for cancer, cardiovascular disease, and other aging related diseases.
- “Gluten-free”:
  - The proposed FDA definition specifies that a food labeled “gluten-free” **does not contain** any of the following:
    - An ingredient that is any species of the grains wheat, rye, barley, or a crossbred hybrid of these grains(collectively referred to as “prohibited grains”)
    - An ingredient that is derived from a prohibited grain and that has NOT been processed to remove gluten (e.g. wheat flour)
    - An ingredient that is derived from a prohibited grain and that has been processed to remove gluten (e.g. wheat starch) if the use of that ingredient results in the presence of 20 mg/kg or more gluten in the food
    - 20 mg/kg or more gluten

The following table includes the ingredients used for a bread in the 2008 event

Flour ingredients	**Provide base for baked goods. Binds water and provides nutrients**
100 g All Purpose Wheat Flour	General purpose flour. Used for most baked goods, cakes, cookies, etc.
100 g Whole Grain Wheat Flour	High fiber flour. Produces a denser loaf of bread
100 g Sorghum Flour	Bland flour. Gluten free. Tends to produce drier, coarser, more crumbly crumb in baked goods
100 g Potato Flour	Bland flour. Gluten free. Used for making dumpling at Passover. Can be sticky
100 g Barley Flour	Contains weaker gluten than wheat flour, generally high in soluble fiber, low glycemic index
100 g Teff Flour	High quality protein, high fiber, high calcium low gluten flour, use for making injera (an Ethiopian flat bread that has a spongy Contains no gluten
100 g Rice Flour	Gluten free
100 g Tapioca/Cassava Flour	Protein and gluten free. Often used with rice flour in baked goods
100 g Brewer's Yeast	"Nutritional yeast", high content of vitamins and some minerals. May contain gluten
100 g Wheat Germ	Removed from wheat when milling. High in protein, mineral, and vitamin E
Thickeners	**Can be used to hold water, replace fats, and are useful for gluten free product to provide structure**
100 g Xanthan Gum	Microbial product. Helps retain moisture during mixing. Helps to entrap air during mixing
100 g Methylcellulose	Modified wood pulp. Used as stabilizer to hold water. Improves the texture of gluten free products. Forms thermal gels. Can be used as a fat replacer
Salts	
100 g Table Salt	Sodium chloride
100 g Lite Salt	Mixture of potassium chloride and sodium chloride
100 g Salt Substitute	Potassium chloride
Leavening agent	**Provide volume and loft. Produces tender product**
100 g Raw Egg	
100 g Low Sodium Baking Powder	Monocalcium phosphate, potato starch, potassium bicarbonate.
100 g Baking Powder	Mixture of sodium bicarbonate, tartaric acid, and cornstarch
100 g Baking Soda	Sodium bicarbonate, a basic substance
100 g Baker's Yeast	Unicellular fungus that produces carbon dioxide, ethanol, and water vapor Provides richness and texture in baked goods. Helps to retard staling.

Fats and oils	**Solid fats can be whipped to provide volume and loft in baked goods**
100 g Lard	Highly saturated fat.
100 g Flaxseed Oil	High in unsaturated fatty acids and essential fatty acids
100 g Butter	Higher in saturated fats. Distinctive flavor
100 g Olive Oil	High in monounsaturated fats. Distinctive flavor
100 g Vegetable Shortening	Similar texture to lard. Made from hydrogenated soybean oils. May contain trans fats
100 g Vegetable oil	General purpose oil
Liquids	
100 g Tap Water	
100 g Whole Milk	Whole milk provides protein and fats. Baking produces distinctive flavors
100 g Non Fat Dry Milk (can be mixed with water)	Provides protein and help improve texture of breads
Sweeteners	
100 g Sugar	Provides sweetness, food for yeast, binds water, and helps with browning reactions
Preservative	
100 g Potassium Sorbate	Prevents the growth of molds and yeast. Used with baked goods. Very soluble in water. Generally requires acidic environments to be effective
100 g Calcium Propionate	Prevents the growth of molds and yeast. Used with baked goods. Very soluble in water.
100 g Sodium Benzoate	Prevents the growth of bacteria, molds and yeast. Used with fruit products. Very soluble in water. Generally requires acidic environments to be effective
Antioxidant	**Prevents oxidation of fats and oils**
100 g Lycopene	Red pigment extracted from tomatoes. Natural product. Fat or oil soluble
100 g Beta Carotene	Orange pigment extracted from orange vegetables such as carrots. Fat or oil soluble